

## XVIII.—On some new Forms of Ochotona.

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WHILE working out the Pikas obtained by Dr. Wollaston on Mt. Everest, the following new forms of the genus have been noted, and may be now described.

These animals are of unusual difficulty owing to their great and almost continuous changes of pelage, so that for a satisfactory knowledge of any species, even from a single locality, quite a number of specimens are needed—ranging in date at least from May to September, during which period most of the seasonal change takes place. Once in the winter pelage, no further change occurs until the following May.

*Ochotona nubrica*, sp. n.

A small species of the *roylei* group.

General colour of the specimens available about as in early summer specimens of *O. roylei wardi*, or rather paler grey. Fur not very long, hairs of back in a summer skin about 12–13 mm. in length. Face, nape, and shoulders grey, with a slight fulvous tinge; hind back clearer grey, the rump again more drabby. No evidence that a rufous mantle is acquired in the late summer, as it is in *roylei*. Under surface, as usual, with the hairs dark slaty at base, whitish terminally. Ear-patches dull buffy whitish, not very large or conspicuous. Area below ears buffy. Ears of moderate size, blackish behind, with white edges.

Skull decidedly smaller than that of *O. wardi*, and narrower in proportion, the breadth across the brain-case much less than in *roylei* or its Kashmir representative *wardi*, and still more so than in *macrotis*. Palatal foramina very widely expanded in their posterior half, much more so than in the other species. Bullæ small and looking narrow, owing to their being apparently more vertically placed, like a disc nearly on edge.

Dimensions of the type (measured in the flesh):—

Head and body 184 mm.; hind foot 33; ear 21.

Skull: greatest length 42; condylo-incisive length 39; zygomatic breadth 19.5; nasals 14.3 × 4.7; interorbital breadth 4.2; breadth across brain-case 15.4; palatal foramina 10.5 × 4.6; palatal bridge 2.4; antero-posterior length of bulla 10.

*Hab.* Ladak, along the Nubra Valley, down to the Pang-Kong Lake. Type from Tuggur, Nubra Valley, alt. 10,000'.

Other specimens collected by C. A. Crump for Col. A. E. Ward from Thirit on the Nubra and Shushal on the Lake.

*Type.* Adult male. B.M. no. 7.9.6.17. Original number 10. Collected 24th June, 1907, and presented by H. Holmes-Tarn, Esq.

This little species was taken for Blanford's *Lagomys auritus* by Bonhote, for the very natural reason that the type-locality of that animal was just where it occurred—on the Pang-Kong Lake. But closer study shows that its skull is smaller and much narrower than that of *O. macrotis*, of which I believe *auritus* to be a synonym, and that its palatal foramina are of different shape, so that it is evidently a distinct species.

Specimens of this species are marked by both Holmes-Tarn and Crump as occurring in thick jungle or scrub, and there may be a difference in the local habitation of the larger species found in the same region.

*Ochotona roylei baltina*, subsp. n.

A pale grey subspecies, replacing to the north-west of Ladak the Kashmir *O. r. wardi*.

Size and essential characters as in true *roylei*, a fulvous mantle on head and fore back no doubt present in the late summer. General colour of back very pale grey, nearest to "pale drab-grey" of Ridgway. Crown with indications of a fulvous mantle coming later. Nape with the buffy-whitish patches well marked.

Other characters and skull as in *O. r. wardi*.

Dimensions of the type:—

Head and body 180 mm. ; hind foot 32 ; ear 27.

Skull: upper length 44 ; condylo-incisive length 40 ; zygomatic breadth 21 ; interorbital breadth 5 ; breadth of brain-case 17.5 ; length of bulla 9.8 ; upper tooth-row 8.

*Hab.* Baltistan, N.W. of Ladak. Type from Nurh, on the Indus, just east of Skardo, 13,000'. Another specimen from Tashgam, 9500' (C. A. Crump).

*Type.* Adult male. B.M. no. 8.7.6.129. Original number 27. Collected 11th June, 1905, by Pearl and presented by Col. A. E. Ward.

Essentially similar to the Kashmir *O. r. wardi*, but distinguished by the greater paleness of its general grey colour, which is about as in *O. macrotis*.

I have had some doubt as to whether this might be Blanford's "*Lagomys auritus*," whose type-locality was on the Pang-Kong Lake, but all details of his excellent figures of the skull, notably the breadth across the brain-case, agree

better with *O. macrotis* than with the present form. And Blanford seems himself to have at first taken for *auritus* a specimen which he afterwards found to have come from the type-locality of Günther's species. As a consequence, *auritus* should be considered as a synonym of *macrotis*, which is certainly found in the part of Ladak immediately north of the Pang-Kong Lake.

*Ochotona curzonie seiana*, subsp. n.

A representative of *curzonie* in Seistan.

General characters very like those of true *curzonie*. General body-colour rather greyer, practically without any brownish suffusion. Under surface washed with pale buffy. Tip of muzzle and of chin black, as in *melanostoma*, this being little perceptible in *curzonie*. Light area behind ears smaller and less conspicuous than in either *curzonie* or *melanostoma*.

Skull in most respects quite like that of *curzonie*, but the supraorbital ridges, as in *melanostoma*, are less developed, hardly perceptible as ridges, and not overhanging the orbit. Incisors slightly more proodont than in either of the allied forms, but with the same strongly projecting inner flange, in this respect contrasting with *rufescens*, which is also far less proodont than any of the present group.

Dimensions of the type (measured on the spirit-specimen before skinning):—

Head and body 152 mm.; hind foot 29; ear 19.

Skull: median length 41; condylo-incisive length 38·7; zygomatic breadth 21; nasals 12·7; interorbital breadth 4·1; breadth across brain-case 15·8; palatal foramina 11·5; antero-posterior length of bulla 10·6; upper tooth-series 8.

*Hab.* Seistan.

*Type.* Adult female, skinned out of spirit on arrival. B.M. no. 6. 1. 2. 12. Indian Museum no. 7983. Collected by the Seistan Boundary Commission of 1905. Presented by the Indian Museum, Calcutta.

The peculiarity of the occurrence of a species so like *O. curzonie* as this in Seistan was not appreciated at the time of its arrival, owing to the ranges of the Indian Pikas not being then at all worked out. Now we know that true *curzonie* only occurs in Sikkim and Tibet, Tingri in the latter country being its most western record. Its recurrence far to the west in Seistan is therefore a notable instance of discontinuous distribution.

From the species that one would have expected in Seistan, *O. rufescens*, this Pika is readily distinguishable externally

by its black-backed ears and hidden digital pads, and cranially by its much more proodont incisors.

Büchner's *O. melanostoma*, from Kan-su and the Koko-Nor regions of Tibet, is another form very closely allied to *curzonii*, and can, at most, only be recognized as a subspecies of it.

*Ochotona gloveri*, sp. n.

A Pika allied to *O. erythrotis*, Büchn., but without a reddish mantle in the summer pelage. Bullæ smaller.

Size large, about as in *O. erythrotis*. General colour of body dark lined greyish, with black tips to the hairs. Nape with obvious but not conspicuous post-aural drabby-white patches, the specimen being in summer pelage. Under surface soiled greyish, the hairs slaty at base, whitish terminally. Sides and top of muzzle dull fulvous; cheeks grey, crown darker grey. Ears, apart from the brownish margin of the proectote, deep cinnamon, the metentote a little paler than the proectote; extreme edges, as usual, whitish. Hands and feet above white, the brush below dull brown.

Skull as figured in *erythrotis*, but the bullæ not so large. Palatal bridge apparently broader.

Dimensions of type:—

Head and body 204 mm.; hind foot 31.

Skull: upper length 46; condylo-incisive length 43; zygomatic breadth 23.5; interorbital breadth 6.2; breadth of brain-case 19; palatal bridge 2.8; antero-posterior length of bulla 10; upper tooth-row (alveoli) 9.

*Hab.* W. Sze-chwan. Type from Nagchuka, 10,000'.

*Type.* Adult male. B.M. no. 13 9. 13. 17. Collector's number 213. Harvard number 7589. Collected 10th August, 1908, by W. R. Zappey.

This species was assigned by Mr. Glover Allen to Büchner's *erythrotis*, and it is undoubtedly nearly allied to that species. But in August, if the same as *erythrotis*, it should have a rufous or fulvous mantle, and there is no trace of this in the specimen. Its bullæ are also smaller than those figured in *erythrotis*.

The value of these characters has been impressed on me by my recent studies of the genus, but it is not surprising that, at a time when such a study was impossible for want of material, Mr. Allen did not think them sufficient for distinguishing the species. In now doing so, I have much pleasure in naming this striking red-eared Pika in his honour.

*Ochotona sikimuria*, sp. n.

A small Pika closely allied to *O. thibetana*\*, but with smaller bullæ.

Size small, much smaller than in the other Himalayan species, *O. roylei*, of which *O. hodgsoni* is a synonym. General colour in winter a quite uniform lined brown more or less similar to that of a large water-vole or a *Sigmodon*; the general tone ranging from "Prout's brown" to "cinnamon-brown." In summer there is a slight indication of lighter shoulder- or neck-patches, but the material is not sufficient to indicate this satisfactorily. Under surface mixed brownish and grey, very much as in *thibetana*. Ears with proectote and outer half of metentote black; metectote with light-coloured fluffy hairs; inner half of metentote whitish; extreme edge of ear contrasted white. Hands and feet brownish; sole-tufts blackish brown.

Skull closely like that of *thibetana*, and consequently far smaller than in *roylei*. The interorbital constriction is of about the same breadth, but the brain-case averages a little narrower. The chief difference, however, is in the bullæ, which are uniformly much smaller than in *thibetana*, being barely over 8 mm. in antero-posterior length, as compared with 9 or upwards in *thibetana*, and they are also less inflated.

Dimensions of the type (measured in flesh):—

Head and body 165 mm.; hind foot 28; ear 19.

Skull: upper length 36·2; condylo-basal length 34·5; zygomatic breadth 16·6; nasals 11 × 4·6; interorbital breadth 4·1; breadth at back of frontals 11·5; breadth of brain-case 13·7; palatal foramina 9; palatal bridge 1·8; antero-posterior length of bulla 8·4; upper molar series (alveoli) 7·4.

*Hab.* Sikkim. Type from Lachen, 8,800'; other specimens from Chola Range, 12,000' (*Blanford*), Jongri (*Blanford*), and Guatong, 12,300' (*Crump*). One specimen from B. H. Hodgson's collection, no doubt obtained when he was at Darjiling.

*Type.* Adult male. B.M. no. 15. 9. 1. 231. Original number 6131. Collected 31st December, 1914, by C. A. Crump. Presented by the Bombay Natural History Society.

This is evidently the common Pika of Sikkim, and has been obtained there ever since Hodgson's time. But for one

\* Although spelt *tibetana* in the 'Recherches,' this name was published as above in the original description in the 'Nouvelles Archives.' The same invalid change was made in the case of *Macacus thibetanus*.

reason or another it has been confused with *O. roylei*, and never distinguished till now. Blanford's specimens had broken skulls, so that he was not able to see the great difference in size between it and *roylei*, while Bonhote unaccountably referred it to *hodgsoni*, a form undoubtedly synonymous with *roylei*, as may be seen by the figure of the skull given in the original description.

From *roylei* it is not only distinguished by its much smaller size, but by its brown instead of grey colour, and the absence of any seasonal fulvous mantle.

But to *O. thibetana* it is far more nearly allied, and can only be separated by the smaller bullæ. Possibly it may prove to be more properly a subspecies of *thibetana*, but I should not be justified in assuming that intermediate specimens occur without seeing material from the intermediate area of Bhotan and South-western Tibet.

The *thibetana* group is widely distributed over Tibet and China, and the present forms its furthest western extension.

*Ochotona zappeyi*, sp. n.

Near *O. thibetana*, but with narrower skull and less uniformly brown back.

Size about as in *thibetana*, though the skull is longer. General colour lined blackish grey, this colour covering the greater part of the back. But the shoulders are washed with drabby, and there are large post-aural drabby whitish patches on each side of the nape. Crown washed with dull drabby. Ears with the proectote black at base, grey distally, while in *skimaria* it is wholly black. Marginal part of inner surface brown, inner part grey; extreme edge white as usual. Under surface greyish white, lighter and more sharply defined than in *thibetana*, the chest, however, drabby brown as in that animal. Hands and feet whitish instead of pale brown; sole-brushes blackish brown.

Skull longer and narrower than that of *thibetana*, with very narrow interorbital region and brain-case. Rudimentary postorbital processes well marked in the single specimen. Bullæ narrower and a little longer than in *thibetana*, much larger than in *skimaria*.

Dimensions of the type:—

Head and body 170 mm.; hind foot 28.

Skull: greatest length 39 mm.; condylo-incisive length 36; zygomatic breadth 17·8; nasals 1·33 × 4·5; interorbital breadth 3·7; post-squamosal breadth 11·8; breadth of brain-



case 14.3; palatine foramina 10; palatal bridge 2; antero-posterior length of bulla 9.5; upper tooth-series (alveoli) 6.7.

*Hab.* W. Sze-chwan. Type from Shu-o-lo (Tschuwo), Nia-nong, N.W. of Ta-chien-lu. Alt. 13,000'.

*Type.* Adult male. B.M. no. 13. 9. 13. 16. Collector's number 246. Harvard number 7601. Collected 20th August, 1908, by W. R. Zappey. Received in exchange from the Museum of Comparative Zoology, Harvard.

The light nape-patches are no doubt less developed in winter, but, as I have had for comparison an August specimen of *thibetana* collected by Mr. Anderson, I have been able to see that they are certainly more conspicuous in *zappeyi* than they are in *thibetana*.

This species was named *O. hodgsoni* in Mr. Glover Allen's admirable paper on Sze-chwan mammals, he, like other people, having been deceived by the confusion which has surrounded the determination of these small Pikas, and especially by the mistaken identification of the somewhat similar Sikim species with *O. hodgsoni* by Bonhote. I have named it after Mr. Zappey, who made the fine collection in which it occurs.

### XIX.—Some Notes on *Ferret-Badgers*.

By OLDFIELD THOMAS.

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OWING to their extreme external resemblance to one another, all the ferret-badgers have usually been considered as of one genus, though sorted into groups according to the sizes of their teeth. The differences in the teeth, however, are so great that I consider that the large-toothed forms (*Melogale*) and the small-toothed forms (*Helictis*) should be generically distinguished, especially as the characters of the baculum both confirm the division and indicate a reason for the separation of a third genus for the N.-Bornean species *Helictis everetti*. Merely going by the teeth, the position of this species had been somewhat doubtful and a cause of hesitation in the frank separation of the groups.

So far as appears, *H. everetti* would appear to be annexant